REMARKS

In response to the Office Action dated February 13, 2003, claims 13 and 14 are amended. Claims 13-18 are now active in this application. No new matter has been added.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 102 AND § 103

Claims 14, 17 and 18 are rejected under 35 U.S.C. 102(a) as being anticipated by Hung et al., USPN 6,069,442 (hereinafter, Hung '442).

Claims 13-16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hung et al., USPN 6,208,075, (hereinafter, Hung '075).

Initially, prominent features of the present invention are described. The features of the organic electroluminescent (El) device recited in independent claim 13 of the instant application include the layer structure sandwiched between paired electrodes and which has an organic layer capable of transporting electrons or holes. The organic layer includes a charge or electron transport interference sub-layer in the inside thereof. The sub-layer is made of an organic material, which has an ionization potential greater than the charge transport material used in the organic layer, or which has an electron affinity smaller than the electron transport material in the organic layer.

Likewise, the features of the organic El device recited in independent claim 14 of the instant application include that the charge transport layer has a charge transport interference sub-layer in the inside of the charge transport layer and the sub-layer is made of a mixture of both a hole transport material and an electron transport material, an inorganic compound or a metal.

As shown clearly in Figs. 3 and 4, the sub-layer (10) is provided in the inside of the charge (4) or electron transport layer (6). While it is believed that reasonable interpretation of claims 13 and 14 delineate that the sub-layer (10) is provided in the inside of the electron or charge transport layer, as described at page 17, line 8, and as shown as the formation of the sub-layer 9 in Fig. 2 or as the sub-layer 10 in Figs. 3 and 4, to expedite prosecution, claims 13 and 14 are amended to clearly recite that "the organic layer has a charge transport interference sub-layer [therein] in the inside thereof.

By the formation of the sub-layer in the inside of the organic layer, as now clearly recited in both amended claims 13 and 14, the electron or hole charge transports can be appropriately controlled, thereby significantly improving emission stability while balancing the electrons and holes in the emission layer.

Hung '442 teaches an El device, which includes an anode layer 204, an organic hole injecting layer 210, an organic hole transporting layer 212, an organic luminescent layer 214, a fluoride layer 216, and an inorganic electronic transporting layer 218. It should be noted that the device includes the inorganic fluoride layer 216 and the inorganic electron transporting layer 218. Nevertheless, these inorganic layers are provided in direct contact with the emission layer and the electrode, unlike the case of the present invention wherein the charge transport interference layer is provided as a sub-layer in the inside of the charge or electron transport layer that is in contact with the emission layer. As set out above, the sub-layer arrangement of the present invention contributes greatly to emission stability.

As is apparent from the above, the charge transport interference sub-layer provided in the inside of the organic layer capable of transporting electrons or holes, or in the inside of the

charge transport layer, according respectively to claims 13 and 14, completely differs in structural arrangement from the inorganic fluoride layer taught in Hung '442. Moreover, it is stated at column 3, lines 6 to 8 of Hung '442 that "a thin fluoride layer 216 is added to improve the efficiency of electron transport from the electron transporting layer 218 into the luminescent layer 214". This would appear to be different from the case of the EL device of the present invention wherein the sub-layer is provided so as to balance the number of electrons and holes in the emission layer. In particular, with the device of Hung '442, the electron transport efficiency is improved so that an electric current passing through the device, by application of a given voltage, undesirably increases. On the other hand, according to the instant invention, neither an injecting nor transporting efficiency of charges is improved, and an electric current passing through the device undergoes little change and, in some case, may slightly lower. Thus, the present invention patentably differs in both structural arrangement and underlying concept from Hung '442. More specifically, amended independent claim 14, as well as dependent claims 17 and 18, are patentable over Hung '442.

As to Hung '075, the Examiner refers to plasma polymer layer 306 of Fig. 3 as being the claimed charge transport interference sub-layer. However, in Fig. 3 of Hung '075, the emission layer is layer 314, the organic layer capable of transporting electrons is layer 316 and the organic layer capable of transporting holes is 312. However, plasma polymer layer 306 is provided in direct contact with the organic hole-transporting layer 312 and the electrode (anode) 304, unlike the case of the instant invention wherein the charge transport interference layer is provided as a sub-layer in the inside of the charge or electron transport layer that is in contact with the emission layer. As plasma polymer layer 306 is not provided as a sub-layer in the inside of

organic hole-transporting layer 312, or as a sub-layer in the side of organic electron-transporting layer 316, amended independent claims 13 and 14 are patentable over Hung '075 also, as are dependent claims 15 and 16.

In view of the above, claims 13-18, as amended, are patentable over both Hung '442 and Hung '075. Consequently, the allowance of claims 13-18, as amended, is respectfully solicited.

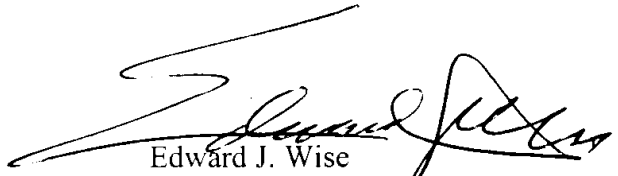
CONCLUSION

Accordingly, it is urged that the application, as amended, is in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY



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